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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,118	09/19/2003	Cheng-Yuan Hsu	B-5241 621274-4	8427
36716	7590	12/27/2004	EXAMINER	
LADAS & PARRY 5670 WILSHIRE BOULEVARD, SUITE 2100 LOS ANGELES, CA 90036-5679			LE, THAO X	
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 12/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/666,118	Applicant(s) HSU ET AL.	
	Examiner Thao X. Le	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 11-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of claims 1-10 in the reply filed on 12/06/04 is acknowledged. The traversal is on the ground(s) that the Examiner has not provided a viable alternative process and that the claim 11 is sufficiently broad that the claimed substrate can be either a carrying substrate or a device substrate. This is not found persuasive because the substrate of claim 11 can be either carrying substrate or device substrate, but it cannot be both at the same time. Thus, the Examiner submits that the alternative proposed process is viable and distinct from the claimed process.

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application

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filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 4-10 are rejected under 35 U.S.C. 102(e) as being anticipated by US Pub 2004/0130947 to Fan et al.

Regarding claim 1, Fan discloses a flash memory device in fig. 2B with selective gate within a substrate, comprising: a substrate 36; a floating gate 31, disposed on the substrate 36; a word line 32/77, fig. 2B and fig. 3C, extending along a first direction and overlying the floating gate 31 and the adjacent substrate thereof; a trench 39 disposed in the substrate 36 adjacent to one side of the word line; a selective gate 41 [0029], fig. 3A vertically disposed the trench and partially covering the floating gate 31; a source region 47 disposed in the substrate adjacent to the other side of the word line; and a drain region 46 [0032] disposed in the substrate beneath the selective gate 41.

Regarding claim 2, Wu discloses the flash memory device as claimed in claim 1, wherein floating gate further comprises a first dielectric layer 34, fig. 2B, and a first polysilicon layer 31 sequentially stacked on the substrate.

Regarding claim 4, Fan discloses the flash memory device further comprising a control gate 32 formed by the portion of the word line overlying the floating gate 31, fig. 2B.

Regarding claims 5-6, Wu discloses the flash memory device wherein the word line 77, fig. 3C, extends along a first direction is composed of second dielectric layer 37,

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fig. 2B, and a second conductive layer 32 and a cap layer 63 [0053] and a spacer 64 [0055] disposed on both sides of the cap layer 63, fig. 3A.

Regarding claims 7-10, Fan discloses the flash memory device wherein the selective gate 41 further comprises a third dielectric layer 42 [0029] and a third conductive layer 41, and the third dielectric layer formed on one sidewall and portions of the bottom of the trench, fig. 2B, wherein the trench depth is about  $1000 \text{ \AA}^0$  –  $6000 \text{ \AA}^0$  [0031], wherein the thickness of the third dielectric layer 42 is about  $100 \text{ \AA}^0$  –  $300 \text{ \AA}^0$  [0059], wherein the thickness of the third conductive layer 41 is about  $500 \text{ \AA}^0$  –  $1000 \text{ \AA}^0$  [0064].

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Pub 2004/0130947 to Fan et al.

Regarding claim 3, Fan discloses the flash memory device as claimed in claim 2, further comprising an oxide layer 44, fig. 2B,

But, Fan does not disclose the with the oxide layer 178 in between 130  $\text{\AA}$  – 220  $\text{\AA}$ . However, Fan discloses the layer 168 has a general thickness and general trench depth. Accordingly, it would have been obvious to one of ordinary skill in art to use the thickness teaching of Fan in the range as claimed, because it has been held that where the general conditions of the claims are disclosed in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. See *In re Aller*, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955).

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### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao X. Le whose telephone number is (571) 272-1708. The examiner can normally be reached on M-F from 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on (571) 272 -1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thao X. Le

17 Dec. 2004

  
**HOA PHAM**  
**PRIMARY EXAMINER**